

Appl. No. 09/932,430
Amdt. dated Jul. 23, 2003
Reply to Office Action of Apr. 23, 2003

REMARKS

In the Office Action, claims 13-21, 23 and 30-35 were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over U.S. Patent No. 6,440,011 to Hocknell et al. (the "Hocknell" patent) in light of Official Notice taken on seven different points to support these rejections, which in general terms, include as follows: (1) material properties of the striking plate, (7) USGA prohibition of golf clubs having loft angles of greater than 10 degrees, (3) attachment means for the striking face, (4) forging of titanium alloys by either cold forging or hot forging, (5) adding weight to the sole, (6) composition combinations of titanium alloy, and (7) forming weight member integral with the sole.

By this Amendment, Applicants amend claims 13, 18, 23 and 30, and add claims 36-38. Nineteen claims are presented for reconsideration. Applicants specifically address the rejections below.

I. Rejection of Claims Based Upon the Hocknell Patent

As mentioned above, claims 13-21, 23 and 30-35 were rejected under 35 U.S.C. § 102(e), as allegedly anticipated, in the alternative, under 35 U.S.C. § 103(a), as allegedly obvious over the Hocknell patent. Applicants respectfully traverse these rejections.

The Hocknell Patent

The Hocknell patent discloses a golf club head formed of four main components: a face member (60), a crown (62), a sole (64), and an interior hosel (54). (See Fig. 9.) The face member includes a striking plate (72) and a face extension (74) that extends from the striking plate. An upper lateral extension (76) of the face extension defines an aperture (59) for receiving the interior hosel. Weight members (122, 123) are attached on a bottom section (91) of the sole.

The face member is preferably formed of beta-titanium and has a variable thickness profile, including a central elliptical region (102) of the greatest thickness, ranging from 0.110 inch to 0.09 inch (2.79 mm to 2.29 mm), and more preferably 0.103 inch to 0.093

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inch (2.62 mm to 2.36 mm) and is most preferably 0.095 inch (2.41 mm). (Col. 5, lines 45-51)
The crown and sole both have a thickness that ranges from 0.025 inch to 0.06 inch (0.63 mm to 1.52 mm), and more preferably 0.047 inch to 0.055 inch. (Col. 5, lines 35-38)

Independent Claim 13

As amended, claim 13 defines a method of manufacturing a golf club head. The method includes forming a unitary body having a crown, a skirt, and a sole defining a front opening, as well as, forming a striking plate of a material having a hardness of at least 30 HRC, a percent elongation of at least 7%, a density of less than about 5 g/cc, and a maximum thickness of less than about 2.2 mm. The crown of the body has a thickness of less than about 0.8 mm over at least a crown transition distance of about 20 mm measured rearwardly from the front opening. The sole having a thickness of less than about 1.0 mm over at least a sole transition distance of about 20 mm measured rearwardly from the front opening. The striking plate is attached to the front opening of the body, and the resultant golf club head has a coefficient of restitution of at least about 0.85 if said loft angle exceeds 12 degrees and at least about 0.87 if said loft angle is 12 degrees or less.

Regarding claim 13, Official Notice has been asserted, as to (1) the material properties of the striking plate as recited in the claim, and (2) USGA prohibition of golf clubs having loft angles of greater than 10 degrees.

In response, Applicants respectfully assert that properties of material can be varied based upon by a number of factors, including fabrication techniques selected. Applicants have identified that forming a striking plate of a material having a hardness of at least 30 HRC, a percent elongation of at least 7%, a density of less than about 5 g/cc contributes to many of the benefits the present invention. Moreover, Applicants respectfully assert that the USGA does not prohibit of golf clubs having loft angles of greater than 10 degrees, as set forth in the Office Action.

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Thus, in accordance with 37 C.F.R. § 1.104 (d)(2) and to preserve Applicants' argument on appeal, Applicants' request that the Examiner provide an affidavit and/or references that evidence the asserted common knowledge (or personal knowledge of the Examiner). Appellants further request that the Examiner identify in the prior art a suggestion or motivation for combining in the manner prescribed. *See In re Lee*, 277 F.3d 1338, 1344-45, 61 U.S.P.Q.2d 1430, 1435 (Fed. Cir. 2002) (finding that reliance on "common knowledge and common sense" did not fulfill the PTO's obligation to cite references to support its conclusions as PTO must document its reasoning on the record to allow accountability and effective appellate review); *see also MPEP* 2144.03 ("A seasonable challenge [to a statement of "well known" art] constitutes a demand for evidence made as soon as practicable during prosecution.")

Despite the aforementioned, the Hocknell patent fails to disclose, or even suggest, a method of manufacturing a golf club head having all of the features of claim 13, including forming a unitary body and forming a striking face having a maximum thickness of less than about 2.2 mm. In contrast, the golf club head of the Hocknell patent is formed of four main components, including a face member, a crown, a sole, and an interior hosel. More specifically, the crown and the sole of formed as separate pieces and, therefore, are not formed as part of a unitary body. The sole is first welded to the face member and, thereafter, the crown is welded to the combination. (Col. 7, lines 60-64). Thus, manufacturing the club head of the Hocknell patent requires additional welds and additional attaching steps.

In addition, Hocknell's striking plate has a maximum thickness ranging from 2.29 mm to 2.79 mm. Whereas, the method of claim 18 forms a striking plate having a number of properties, including a maximum thickness of less than about 2.2 mm, below even Hocknell's broadest range. Hocknell teaches away from a maximum thickness below the lower end of this broadest range. Rather, Hocknell teaches that it is more preferred to have a maximum thickness well above the lower end, namely, a maximum thickness ranging from 2.36 mm to 2.62 mm and most preferably 2.41 mm.

Accordingly, the rejection of claim 13, under either Section 102 or Section 103, is improper and should be withdrawn.

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Dependent Claims 14-17

Claims 14-17 depend from claim 13, adding features that more particularly define the invention and further distinguish over the cited art.

In addition to those discussed above, Official Notice has been asserted in the rejections against claims 14, 15 and 16, as to (3) attachment means for the striking face, (4) forging of titanium alloys by either cold forging or hot forging, and (5) adding weight to the sole.

In response, Applicants request that the Examiner provide an affidavit and/or references that evidence the asserted common knowledge (or personal knowledge of the Examiner). Appellants further request that the Examiner identify in the prior art a suggestion or motivation for combining in the manner prescribed. *Id.*

Despite the aforementioned, the Hocknell patent fails to disclose, or even suggest, a method of manufacturing a golf club head having all of the features of claim 13, let alone claims 14-17. For example, claim 15 further set forth cold forming the striking plate, including at least about 30% cold working of said striking plate. In contrast, Hocknell espouses an entirely different approach. Rather, Hocknell teaches forming a face member having a striking plate and a face extension, by a process involving multiple heating and pressing steps.

Altering the Hocknell method in the manner set forth by the Examiner (*i.e.*, cold forming rather than multiple heating and pressing steps) utterly changes Hocknell's very principle of operation and, therefore is improper. MPEP 2103.01 ("The proposed modification cannot change the principle of operation of a reference.") Moreover, based upon the teachings of Hocknell, one skilled in the art would have been dissuaded from forming a striking plate in the manner set forth in claim 15 and, for that reason alone, is improper. *Id.*

Accordingly, for these reasons and for the reasons set forth above, the rejection of claims 14-17, under either Section 102 or Section 103, is improper and should be withdrawn.

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Independent Claims 18 and 23

As amended, independent claims 18 and 23 sets forth a method of manufacturing. The method includes forming a unitary body of a titanium alloy, including a crown having a thickness of about 0.7 mm, a skirt, and a sole having a thickness of about 0.9 mm, defining a front opening. The methods further include cold forming a striking plate of a beta-type titanium alloy to have a hardness of at least 30 HRC and a percent elongation of at least 7%, said striking plate having a maximum thickness (for claim 18, between 1.1 and 1.8 mm; and for claim 23 about 1.7 mm), as well as, providing a weight member of between 18 to 22 grams to said sole of said body. The striking plate is welded to the front opening of the body. The resultant golf club head has a coefficient of restitution of at least 0.88.

The Hocknell patent fails to disclose, or even suggest, a method of manufacturing a golf club head having all of the features of claims 18 and 23, including forming a unitary body and forming a striking face having a maximum thickness of less than about 1.1 and 1.8 mm, let alone about 1.7 mm. As previously discussed, Hocknell teaches away from use of a unitary body in manufacturing a club head, let alone one in combination with a striking plate having a maximum thickness, as set forth in claims 18 or 23. Rather, Hocknell teaches a four component club head including a striking plate having a maximum thickness well above that range. Moreover, Hocknell teaches away from cold forming a striking plate of a beta-type titanium alloy to achieve the material properties of these claims.

Accordingly, for these reasons and for the reasons set forth above, the rejection of independent claims 18 and 23, under either Section 102 or Section 103, is improper and should be withdrawn.

Dependent Claims 19-21

Claims 19-21 depend from claim 18, adding features that more particularly define the invention and further distinguish over the cited art.

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In addition to those discussed above, Official Notice has also been asserted in the rejection against claim 19, as to (6) composition combinations of titanium alloy.

In response, Applicants request that the Examiner provide an affidavit and/or references that evidence the asserted common knowledge (or personal knowledge of the Examiner). Appellants further request that the Examiner identify in the prior art a suggestion or motivation for combining in the manner prescribed. In re Lee; MPEP 2144.03.

Despite the aforementioned, the Hocknell patent fails to disclose, or even suggest, a method of manufacturing a golf club head having all of the features of claim 18, let alone claims 19-21. For example, claim 19 specifically sets forth cold forming the striking plate of a titanium alloy substantially comprising by weight about 4% aluminum, 20% vanadium, and 1% tin. Claim 20 further specifies cold forming the striking plate, including at least about 30% cold working of said striking plate, to which claim 21 even more particularly sets forth cold forming to create a peripheral thickness of said striking plate that is about 0.5 mm less than a thickness at a center of said striking plate.

As previously discussed, Hocknell espouses an entirely different approach. Rather, Hocknell teaches forming a face member having a striking plate and a face extension, by a process involving multiple heating and pressing steps. Altering the Hocknell method to include such steps is even further afield of Hocknell's teaching and, therefore, is improper.

Accordingly, for these reasons and for the reasons set forth above, the rejection of claims 19-21, under either Section 102 or Section 103, is improper and should be withdrawn.

Independent Claim 30

As amended, claim 30 sets forth a method of manufacturing a golf club head. The method includes casting a unitary body of a titanium alloy having a crown, a skirt and a sole defining a front opening. The crown has a thickness of less than 0.8 mm over at least a crown transition distance of about 20 mm measured rearwardly from the front opening, and the sole has a thickness of less than 1.0 mm. The method further includes providing a weight member of

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between 15 grams to 25 grams on the sole of the body; and forming a striking plate having a hardness of at least 30 HRC and a percent elongation of about 7%, the striking plate having a density of less than 5 g/cc and having a thickness of between 1.1 and 1.8 in a central region thereof. The striking plate is welded to the front opening of the body, and the resultant the golf club head has a volume of at least 300 cc.

The Hocknell patent fails to disclose, or even suggest, a method of manufacturing a golf club head having all of the features of claim 30, including the striking plate having a density of less than 5 g/cc and having a thickness of between 1.1 and 1.8 mm in a central region thereof. In contrast, Hocknell discloses a striking plate having a central elliptical region (102), ranging from 2.79 mm to 2.29 mm. As discussed above, Hocknell teaches away from this central region having a thickness below its greatest preferred range.

Accordingly, for these reasons and for the reasons set forth above, the rejection of claim 30, under either Section 102 or Section 103, is improper and should be withdrawn.

Dependent Claims 31-38

Claims 31-38 depend from claim 30, adding features that more particularly define the invention and further distinguish over the cited art. Claims 36-38 are added by this amendment.

In addition to those discussed above, Official Notice has been asserted in the rejections against claims 34 and 35 as to (7) forming weight member integral with the sole.

In response, Applicants' request that the Examiner provide an affidavit and/or references that evidence of the asserted common knowledge or personal knowledge of the Examiner, as well as, identify in the prior art any suggestion or motivation for combining. *Id*

Despite the aforementioned, the Hocknell patent fails to disclose, or even suggest, a method of manufacturing a golf club head having all of the features of claim 30, let alone claims 31-38. For example, manufacturing a club head by the method of claim 30, resulting in

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club head having a volume of at least 400 cc, as specified in claim 31. Also, claim 36 specifies the striking plate as welded to the front opening of the body such that the body and the striking plate are angled relative to each other about the weld joint. In contrast, Hocknell teaches away from such an approach. Rather, Hocknell's face member engages the sole and crown "along a substantially horizontal plane." (Col. 4, lines 26-34, 60-68.) Although Hocknell discusses a face plate engaging perpendicularly, it dismisses such approaches as inhibiting a high COR.

Accordingly, for these reasons and for the reasons set forth above, the rejection of claims 19-21, under either Section 102 or Section 103, is improper and should be withdrawn.

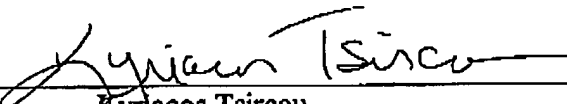
II. Conclusion

The foregoing remarks should place this application in condition for allowance. If any matters remain outstanding after consideration of this Amendment that the Examiner believes might be expedited by a telephone conference with Applicants' representative, he is respectfully requested to call the undersigned attorney at the number indicated below.

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Respectfully Submitted,

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